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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,861	11/08/2001	Daniel C. Edelstein	FIS9-2001-0156	2803

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09/22/2003

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EXAMINER

FULLER, ERIC B

ART UNIT

PAPER NUMBER

1762

DATE MAILED: 09/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/005,861	EDELSTEIN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Eric B Fuller	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 January 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>(1)</u> | 6) <input type="checkbox"/> Other:  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Grill et al. (US 6,147,009).

Grill teaches a process of forming a hydrogenated oxidized silicon carbon film (column 4, lines 65-66) by PECVD (column 5, line 19). The reference reads on the applicant's precursors (column 3, lines 15-30), oxygen source (column 10, line 61), temperature (column 3, lines 30-35), annealing (column 3, lines 10-15), parallel plate reactor (column 3, lines 1-5), carrier gases (column 6, line 64), flow ratios (column 6, lines 25-35), and dielectric constant (column 6, line 12).

Claims 1-5 and 7-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Loboda et al. (US 6,159,871).

Loboda teaches a method of depositing a HSiOC film by PECVD (abstract). Methylsilane may be the precursor (column 2, line 57). The temperature is within the

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applicant's range (column 3, line 26). The dielectric constant of the resulting film is within the applicant's range (tables). The process is performed in a parallel plate reactor (column 4, lines 45-50). Argon may be used as a diluent gas (column 3, lines 13-15). The oxidizer flow rate is within the applicant's range (column 3, lines 4-10). The annealing step is read on (tables). The reference teaches that the "oxygen providing gases include, but are not limited to air, ozone, oxygen, nitrous oxide, and nitric oxide, preferably nitrous oxide." It is the interpretation of the examiner that this anticipates using oxygen only, as examples are cited in the reference where a single type of oxygen providing gas is used. Using oxygen only reads on "substantially free of nitrogen".

Claims 1-3, 5, 7-11, 13, 14, and 16-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Towle (US 6,610,362 B1).

Towle teaches a method of depositing a carbon doped oxide layer (abstract) by PECVD (column 1, line 60). The film that is deposited additionally comprises hydrogen (column 2, lines 45-46) and silicon (column 1, lines 65-67). Methylsilane may be the precursor (column 2, lines 1-9). The dielectric constant of the resulting film is within the applicant's range (column 2, lines 25-26). Argon may be used as a diluent gas (column 2, line 27). The annealing step is read on (column 2, lines 40-45).

***Claim Rejections - 35 USC § 103***

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Towle (US 6,610,362 B1), as applied to claim 1 above, and further in view of Loboda et al. (US 6,159,871).

Towle teaches the limitations of claim 1, as shown above, but is silent to the temperature of the chamber. However, it is taught that "conventional temperatures" are used (column 2, lines 40-45). Additionally Loboda teaches that conventional temperatures are less than 500 degrees Celsius in order to prevent substrate damage (column 3, lines 25-30). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use a temperature less than 500 degrees Celsius in the process taught by Towle. By doing so, substrate damage is prevented.

As to claim 12, Towle is silent to the type of reactor used, but teaches uses conventional reactors (column 2, lines 40-45). Loboda teaches parallel plate reactors for performing similar depositions (column 4, lines 45-55). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use a parallel plate reactor in the process taught by Towle. By doing so, one would have an expectation of success, as Towle teaches to use a convention reactor and Loboda teaches that parallel plate reactors are conventional.

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Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Towle (US 6,610,362 B1), as applied to claim 1 above, and further in view of Lagendijk (US 5,028,566).

Towle teaches the limitations of claim 1, as shown above, but is silent to the teaching of using tetramethylcyclotetrasiloxane (TMCTS) as the precursor. However, it is taught that octamethylcyclotetrasiloxane (OCMET) may be used. Lagendijk teaches the equivalence of these two precursors (column 3, lines 1-5). Therefore, it would have been obvious to use TMTCTS in the process taught by Towle. By doing so, one would have a reasonable expectation of success, as Lagendijk teaches the equivalence of these two precursors.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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Claims 1-19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 4, 6, and 7 of U.S. Patent No. 6,147,009. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the US patent read on the claims of the present invention. The claims of the patent contain additional limitations such as the film comprising 4 to 45 percent carbon. However, to broaden the claims would have been obvious. Additionally, although the claims of the patent are silent to the dielectric constant, this is an inherent quality of the deposited film.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ikeda (US 5,593,741) is cited for being pertinent to the applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B Fuller whose telephone number is (703) 308-6544. The examiner can normally be reached on Mondays through Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck, can be reached at (703) 308-2333. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

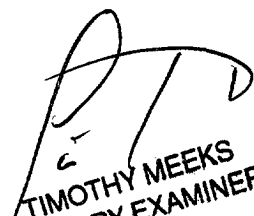
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EBF



TIMOTHY MEEKS  
PRIMARY EXAMINER